GP/1636/#

PATENT

Attorney Docket No. **DOW-04646**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: George P. Lomonosoff *et al.*
Serial No.: 09/304,967
Filed: 05/05/99
Entitled: **Modified Plant Viruses As Vectors of Heterologous Peptides**

Group No.: 1636
Examiner: W. Sandals

AMENDMENT TRANSMITTAL

Assistant Commissioner for Patents
Washington, D.C. 20231

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8(a)(1)(i)(A)

I hereby certify that this correspondence (along with any referred to as being attached or enclosed) is, on the date shown below, being deposited with the U.S. Postal Service with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

Dated: December 31, 2001 By: Traci E. Light
Traci E. Light

Sir or Madam:

Transmitted herewith is an amendment for this application. The fee has been calculated as shown below.

	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE	ADDITIONAL FEE
Total Claims	4	—	39	0	×	18.00	$0.00
Independent Claims	1	—	3	0	×	84.00	$0.00

One Month Extension of Time $110.00

TOTAL DUE **$110.00**

1. A check in the amount of **$110.00** is attached.
2. Please charge any additional fees, including any fees necessary for extensions of time, or credit overpayment to Deposit Account No. **08-1290**. **An originally executed duplicate of this transmittal is enclosed for this purpose.**
3. Petition for extension of time. The undersigned attorney of record hereby petitions for an extension of time pursuant to 37 C.F.R. § 1.136, as may be required, to file this response.

Dated: December 31, 2001 By: _____
Peter G. Carroll
Registration No. 32,837

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101 Howard Street, Suite 350
San Francisco, California 94105
415/904-6500

PATENT

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In re Application of: George P. Lomonossoff *et al.*
Serial No.: 09/304,967 Group No.: 1636
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Entitled: **Modified Plant Viruses as Vectors of Heterologous Peptides**

AMENDMENT AND RESPONSE TO OFFICE ACTION MAILED 08/29/01

#19/D
3 cta
2-11-02

Assistant Commissioner for Patents
Washington, D.C. 20231

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8(a)(1)(i)(A)

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Dated: December 31, 2001 By: Traci E. Light

Sir or Madam:

Please enter the following on the record in response to the above cited Office Action mailed August 29, 2001.

A clean version of the rewritten or added claims with instructions for entry pursuant to 37 C.F.R. § 1.121(c)(1)(i) is included beginning on page two of this communication. A marked-up version of the rewritten claims pursuant to 37 C.F.R. § 1.121(c)(1)(ii) is attached as Appendix I. A clean version of the entire set of pending claims pursuant to 37 C.F.R. § 1.121(c)(3) as they should appear following entry of this amendment is attached as Appendix II.

A clean version of the rewritten or added paragraphs with instruction for entry pursuant to 37 C.F.R. § 1.121(b)(1)(ii) is included beginning on page three of this communication. A marked-up version of the rewritten paragraphs pursuant to 37 C.F.R. § 1.121(b)(1)(iii) is attached as Appendix III.

CLEAN VERSION OF REWRITTEN OR ADDED PARAGRAPHS

PURSUANT TO 37 C.F.R. § 1.121(b)(1)(ii)

On page 1, please add:

D2 In accordance with the provisions of 35 U.S.C. 120, this application claims the priority and is a continuation-in-part of U.S. Patent Application Nos. 08/471,048, filed June 6th, 1995; now US 5,874,087 08/612,858, filed June 5th, 1996; now US 5,958,422 08/137,032, filed December 15th, 1993, now US 6,010,466 which is a 371 of PCT/GB20/00589, filed April 2nd, 1992, which claims benefit of the priority under 35 U.S.C. 119 of: Great Britain Patent Application No. 91 08386.5, filed April 16, 1991.

On page 15, please rewrite:

D3 Figure 2a and 2b depicts (A) the sequence of the oligonucleotide used in the construction of pFMDV together with the amino acid sequence encoded by the top (positive) strand, which corresponds to amino acid residues 136-160 from VP1 of FMDV serotype O_1, and (B) the structure of VP23 after insertion of the FMDV-specific oligonucleotides. The arrowed region indicates the extent of the inserted FMDV epitope. The *Nhe*1 site not restored during the cloning is indicated by x*Nhe*1. The diagnostic *Bgl* II site present in the inserted sequence is also indicated.

On page 16, please rewrite:

D4 Figure 5a and 5b depicts (A) the nucleotide sequence if the oligonucleotides used in the construction of pMT7-HIV together with the amino acid sequence encoded by the top (positive) strand which corresponds to amino acid residues 735-752 from gp41 of HIV1, and (B) the sequence of VP23 after insertion of the HIV-specific oligonucleotides. The arrowed region indicates the extent of the inserted HIV epitope. The *Pvu* 1 site present in the inserted sequence is also indicated.

Figure 6a and 6b depicts (A) the nucleotide sequence if the oligonucleotides used in the construction of pMT7-HRV together with the amino acid sequence encoded by the top (positive) strand which corresponds to amino acid residues 85-99 from VP1 of HRV-14, and (B) the sequence of VP23 after insertion of the HRV-specific oligonucleotides. The arrowed region indicates the extent of the inserted HRV epitope. The *Cla* 1 site present in the inserted sequence is also indicated.

On page 17, please rewrite:

Figure 10 is a simple line drawing of the solved β-barrel containing virus structures showing the secondary structural elements which make up the coat protein domains.

Figure 11a and 11b shows the (A) nucleotide and (B) protein sequences of SBMV surrounding a potential insertion site.

Figure 12 shows a comparison of the βH-βI loop of three sobemoviruses. Conserved residues are highlighted in bold and the locations of the loops and β-strands are indicated.

Figure 13a and 13b shows the (A) nucleotide and (B) protein sequences of LTSV surrounding a potential insertion site.

Figure 14 illustrates alignment of the coat protein sequences of RCNMV and TBSV using a Lopman-Person alignmnent algorithm.

Figure 15 illustrates a Chou-Fasman β-region prediction plot of RCNMV residues 214-257 using an algorithm based upon the structures found in 64 proteins.

Figure 16 illustrates application of the EMBL PHDsec algorithm program to the same RCNMV sequence as shown in Figure 15.

Figure 17a and 17b shows the (A) nucleotide and (B) protein sequences of RCNMV surrounding a potential insertion site.

Figure 18a and 18b shows (B) five deletion constructs and (A) an unmodified clone of TRV as described in Example 13.

On page 22, please rewrite:

The construction and properties of plasmids pBT7-123, pMT7-FMDV-I and pMT7-FMDV-II have been described previously (Usha, *et al.*, 1993). These constructs and their derivatives were propagated in *Escherichia coli* strain JM83. Oligonucleotides were synthesized on a Pharmacia GENE ASSEMBLER PLUS™ synthesizer. Sequence analysis was performed by "dideoxy" method using either *E. coli* DNA polymerase I (Klenow fragment) or Sequenase™ version 2.0.